supplying power to the motor to cause the shaft and the impeller to rotate; and

with the pump stage, applying pressure to the lubricant and flowing the lubricant to the bearing from the pump stage without passing through any filter at a pressure sufficient to induce a film of lubricant between the shaft and the bearing that prevents the shaft from contacting the bearing.

REMARKS

Applicants appreciate the courteous assistance provided by Examiner Le in the telephone interview of March 26, 2003. In the interview, the Examiner indicated that amending the claims to include that the pump stage pumped lubricant to the bearings without passing through any filter would distinguish over the art before him, however, he would need to conduct additional searching. Applicants request permission to amend the claims accordingly.

Specifically discussing the paragraphs of the last Office Action, Erickson shows a filter 51 through which lubricant flows from impeller 40. Filter 51 serves to remove water that leaks into the motor housing and mixes with the lubricant. Impeller 40 provides pressure adequate to circulate the lubricant through filter 51. Although lubricant flows to the bearings, there is no discussion in Erickson that the pressure is high enough to create a fluid film between the rotating and stationary components of the bearings. The declaration of Mark James, previously submitted, submits that the pressure from a single stage as in Erickson is not adequate.

Applicants submit that it would not be obvious to utilize a plurality of pump stages in Ercikson in view of McMahan. Although McMahan shows a plurality of stages, the stages are employed to pump a working fluid, such as water, oils, chemicals (Col 2, line 62), not circulate lubricant within the motor. Shaft seal 44 prevents leakage of liquid from the discharge of impeller 15 into motor rotor compartment 45 (Col. 3, lines 46-49). The motor of Erickson also

connects to a pump that is not shown for pumping a well fluid similar to the pump stages of McMahan. Since Erickson's stage is located in the motor for circulating lubricant through a filter to remove water, there is no motivation to employ more stages to increase the pump pressure in view of McMahan.

In regard to the Examiner's comments concerning claim 3, applicant submits that passages 24, 28 of Erickson are not in the diffuser, rather they are in a separate body 20 located below stator unit 41. Stator unit 41 serves as a diffuser by directly fluid discharged from impeller 40 radially inward and downward through outlet 41a. Claim 3 requires that each diffuser have a plurality of passages that extend downstream and inward to a central inlet of one of the impellers. The passage of stator unit 41 of Erickson extends downstream and terminates at chamber 18, not at impeller 40, which is located upstream. The fluid flows from chamber 18 to passages 24, 28 in body 20.

In regard to claim 4, impeller 40 of Erickson discharges into stator unit 41, which serves as the diffuser. Claim 4 requires that one of the impellers discharge into a chamber in the housing without flowing through any diffusers. McMahan deals with a working fluid pump, not pump stages within the motor that circulate lubricant.

In regard to claim 6, the chamber of Erickson is not fixed in volume because the chamber is within a bellows 30 that is able to expand and contract. As to the other claims, Guardiani also deals with a pump for pumping a working fluid, not pump stages within a motor for circulating lubricant. Some of the working fluid of the pump of Guardiani is circulated through the motor for cooling. Because of the wide difference in structure, it would not be obvious to combine Carle with Guardiani.

Applicants are sending this amendment by fax in view of the amendment being after final. Also, Applicants inform the Examiner that it recently received a search report from a corresponding application and will be sending a supplemental information disclosure statement. Because of the number of included references, applicant is mailing the supplemental information disclosure statement.

Applicants respectfully submit that the claims are now in condition for allowance and respectfully request reconsideration.

Respectfully submitted,

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1.(Three Times Amended) In an electric motor having a shaft and a bearing located within a housing that is adapted to be filled and sealed with lubricant, the improvement comprising:

a plurality of centrifugal lubricant pump stages located in the housing, each of the pump stages having an impeller attached to and rotating with the shaft and a mating diffuser for pressurizing the lubricant; and

a flow passage leading from the lubricant pump stages to the bearing without passing through any filter for applying sufficient pressure to the lubricant to induce a film of lubricant between the bearing and the shaft.

7. (Three Times Amended) An electric submersible pump assembly for a well, the assembly comprising:

an electrical motor having a shaft and a bearing located within a housing that is [adapted to be] filled and sealed with lubricant;

a chamber located in a lower portion of the housing for containing a volume of lubricant;

a flow passage within the shaft leading from the chamber to the bearing without passing through any filter;

first and second centrifugal lubricant pump stages, each pump stage located in the chamber of the housing and each having an impeller attached to and rotating with the shaft and a mating diffuser for pressurizing the lubricant; and

a pump exterior of the motor and connected to the shaft for pumping well fluid.

12. (Twice Amended) A method of operating an electric motor having a shaft and a bearing located within a housing that is adapted to be filled and sealed with lubricant, comprising:

mounting at least one centrifugal lubricant pump stage in the housing, the pump stage having an impeller attached to and rotating with the shaft and a mating diffuser for pressurizing the lubricant;

supplying power to the motor to cause the shaft and the impeller to rotate; and

with the pump stage, applying pressure to the lubricant and flowing the lubricant to the bearing from the pump stage without passing through any filter at a pressure sufficient to induce a film of lubricant between the shaft and the bearing that prevents the shaft from contacting the bearing.